

**Amendment and Response Under 37 C.F.R. §1.116 - Expedited Examining Procedure**

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Serial No.: 10/626,341

Confirmation No.: 9160

Filed: 24 July 2003

For: AMIDE-FUNCTIONAL POLYMERS, COMPOSITIONS, AND METHODS**Remarks**

The Final Office Action mailed 24 July 2006 has been received and reviewed.

Independent claims 1, 3, 6, 8, 11, 24, 33, and 44 have been amended.

Claims 15-23 and 34-43, which are claims directed to non-elected groups, have been canceled herein without prejudice. Applicants reserve the right to prosecute the subject matter of claims 15-23 and 34-43 in divisional or continuation applications.

Applicants respectfully submit that newly added claims 59-65 are directed to the subject matter of Group I (claims 1-7), which is the group currently under consideration.

Applicants respectfully submit that newly added claims 66-75 are directed to the subject matter of Group V (claims 24-33 and 57), and that newly added claims 76-88 are directed to the subject matter of Group VII (claims 44-56 and 58), both of which have been withdrawn from consideration by the Examiner as non-elected groups.

As such, the currently pending claims are claims 1-14, 24-33, and 44-88; the claims withdrawn from consideration as being directed to non-elected groups are claims 8-14, 24-33, 44-58, and 66-88; and the claims currently under consideration are claims 1-7 and 59-65.

Independent claims 1, 3, and 6 have been amended to recite a reactive polymer prepared by a method comprising: combining and copolymerizing monomers comprising N-isopropylacrylamide and a hydroxy-functional (meth)acrylate monomer to form a hydroxy-functional polymer; and reacting the hydroxy-functional polymer with a hydroxy-reactive material selected from the group consisting of a (meth)acrylate-functional isocyanate, a (meth)acrylate-functional epoxide, a vinyl azlactone, and combinations thereof. The amendments are supported, for example, by originally filed claim 8 and the Examples in the specification at, for example, page 24, lines 4-14.

Withdrawn independent claims 8 and 11 have been amended to recite "combining" and copolymerizing, which is supported, for example, by the Examples in the specification at, for example, page 24, lines 4-14.

Withdrawn independent claims 24 and 44 have been amended to depend from claim 1,

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and withdrawn independent claim 33 has been amended to depend from claim 3.

New claims 59-65 are supported, for example, by originally filed claims 1-7 and withdrawn claim 11 (as amended). New claims 66-74 depend from new claim 59, and are supported, for example, by originally filed claims 24-32. New claim 75 depends from new claim 61, and is supported, for example, by originally filed claim 33. New claims 76-88 depend from new claim 59 and are supported, for example, by originally filed claims 44-56.

Reconsideration and withdrawal of the rejections are respectfully requested.

#### **Rejection under 35 U.S.C. §102**

The Examiner rejected claims 1-3 under 35 U.S.C. §102(b) as being anticipated by JP 4-41423 (translation). This rejection is respectfully traversed.

Independent claims 1 and 3 (as amended) each recite "[a] reactive polymer prepared by a method comprising: combining and copolymerizing monomers comprising N-isopropylacrylamide and a hydroxy-functional (meth)acrylate monomer to form a hydroxy-functional polymer; and reacting the hydroxy-functional polymer with a hydroxy-reactive material selected from the group consisting of a (meth)acrylate-functional isocyanate, a (meth)acrylate-functional epoxide, a vinyl azlactone, and combinations thereof."

The Examiner asserted that the copolymerization of N-isopropylacrylamide and ethylene glycol dimethacrylate disclosed in JP 4-41423 would result in a polymer having a pendant ethylenically unsaturated group. Applicants respectfully disagree with the rejection for at least the reasons recited in the Response submitted 8 May 2006, the remarks of which are incorporated herein by reference. Further, JP 4-41423 (translation) clearly recites "copolymerization with a crosslinkable monomer having two or more double bonds in the molecule" as an example of "insolubilizing methods during polymerization" (page 9, last paragraph of translation). In accordance with this description, Examples 1 and 2 (pages 16-17 of translation) each produced a gel or hydrogel membrane.

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Nonetheless, in the interest of expediting the prosecution of the present application, independent claims 1 and 3 have been amended to claim a polymer prepared by the recited method, and Applicants respectfully submit that such polymers are clearly distinct from those produced by the copolymerization of N-isopropylacrylamide and ethylene glycol dimethacrylate as disclosed in JP 4-41423. Thus, Applicants respectfully submit that claims 1-3 (as amended) are not anticipated by JP 4-41423.

For at least these reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-3 under 35 U.S.C. §102 as being anticipated by JP 4-41423.

The Examiner rejected claims 1-4 under 35 U.S.C. §102(b) as being anticipated by Kaetsu et al. (U.S. Patent No. 5,152,758). This rejection is respectfully traversed.

Independent claims 1 and 3 (as amended) each recite "[a] reactive polymer prepared by a method comprising: combining and copolymerizing monomers comprising N-isopropylacrylamide and a hydroxy-functional (meth)acrylate monomer to form a hydroxy-functional polymer; and reacting the hydroxy-functional polymer with a hydroxy-reactive material selected from the group consisting of a (meth)acrylate-functional isocyanate, a (meth)acrylate-functional epoxide, a vinyl azlactone, and combinations thereof."

The Examiner asserted that the copolymerization of N-isopropylacrylamide and a crosslinking agent such as ethylene glycol dimethacrylate disclosed in Kaetsu et al. would result in a polymer having a pendant ethylenically unsaturated group. Applicants respectfully disagree with the rejection for at least the reasons recited in the Response submitted 8 May 2006, the remarks of which are incorporated herein by reference, in addition to reasons similar to those presented in the remarks herein above.

Nonetheless, in the interest of expediting the prosecution of the present application, independent claims 1 and 3 have been amended to claim a polymer prepared by the recited method, and Applicants respectfully submit that such polymers are clearly distinct from those

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produced by the copolymerization of N-isopropylacrylamide and ethylene glycol dimethacrylate as disclosed in Kaetsu et al. Thus, Applicants respectfully submit that claims 1-4 (as amended) are not anticipated by Kaetsu et al.

For at least these reasons, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-4 under 35 U.S.C. §102 as being anticipated by Kaetsu et al.

### **Rejections under 35 U.S.C. §103**

The Examiner rejected claims 5-7 under 35 U.S.C. §103(a) as being unpatentable over Kaetsu et al. (U.S. Patent No. 5,152,758). This rejection is respectfully traversed.

The deficiencies of Kaetsu et al. as applied to claims 3 and 4 have been discussed herein above in response to the anticipation rejection based on Kaetsu et al. Claim 5 depends from claim 4. Applicants respectfully submit that claim 4 is patentable over Kaetsu et al. for at least the reasons presented herein above for the patentability of claims 3 and 4. In brief, Kaetsu et al. fail to disclose or suggest polymers prepared by a method as recited in claim 3.

Independent claim 6 recites "[a] reactive polymer prepared by a method comprising: combining and copolymerizing monomers comprising N-isopropylacrylamide and a hydroxy-functional (meth)acrylate monomer to form a hydroxy-functional polymer; and reacting the hydroxy-functional polymer with a hydroxy-reactive material selected from the group consisting of a (meth)acrylate-functional isocyanate, a (meth)acrylate-functional epoxide, a vinyl azlactone, and combinations thereof." Again, Kaetsu et al. fail to disclose or suggest polymers prepared by a method as recited in claim 6.

For at least these reasons, Applicants respectfully submit that claims 5-7 are patentable over Kaetsu et al.

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The Examiner rejected claims 1-7 under 35 U.S.C. §103(a) as being unpatentable over Tanaka et al. (U.S. Patent No. 4,723,930) or Meier et al. (U.S. Patent No. 6,616,946), or Kazakov et al. (U.S. Patent Publication No. 2003/0044455 A1). This rejection is respectfully traversed.

*TANAKA ET AL.*

The Examiner asserted that the copolymerization of N-isopropylacrylamide and a crosslinking agent such as a dimethacrylate as disclosed in Tanaka et al. would result in a polymer having a pendant ethylenically unsaturated group. Applicants respectfully disagree with the rejection for at least the reasons recited in the Response submitted 8 May 2006, the remarks of which are incorporated herein by reference, in addition to reasons similar to those presented in the remarks herein above.

Nonetheless, in the interest of expediting the prosecution of the present application, independent claims 1, 3, and 6 have been amended to claim a polymer prepared by the recited method, and Applicants respectfully submit that such polymers are clearly distinct from those produced by the copolymerization of N-isopropylacrylamide and a crosslinking agent such as a dimethacrylate as disclosed in Tanaka et al. Thus, Applicants respectfully submit that claims 1-7 (as amended) are patentable over Tanaka et al.

*KAZAKOV ET AL.*

The Examiner asserted that the copolymerization of N-isopropylacrylamide and a crosslinking agent such as a dimethacrylate as disclosed in Kazakov et al. would result in a polymer having a pendant ethylenically unsaturated group. Applicants respectfully disagree with the rejection for at least the reasons recited in the Response submitted 8 May 2006, the remarks of which are incorporated herein by reference, in addition to reasons similar to those presented in the remarks herein above.

Nonetheless, in the interest of expediting the prosecution of the present application, independent claims 1, 3, and 6 have been amended to claim a polymer prepared by the recited

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method, and Applicants respectfully submit that such polymers are clearly distinct from those produced by the copolymerization of N-isopropylacrylamide and a crosslinking agent such as a dimethacrylate as disclosed in Kazakov et al. Thus, Applicants respectfully submit that claims 1-7 (as amended) are patentable over Kazakov et al.

*MEIER ET AL.*

The Examiner asserted that claims 1-7 are obvious over the segmented or block copolymers disclosed by Meier et al. Applicants respectfully disagree with the rejection for at least the reasons recited in the Response submitted 8 May 2006, the remarks of which are incorporated herein by reference.

Nonetheless, in the interest of expediting the prosecution of the present application, independent claims 1, 3, and 6 have been amended to claim a polymer prepared by the recited method, and Applicants respectfully submit that such polymers are clearly distinct from the segmented or block copolymers disclosed by Meier et al. Thus, Applicants respectfully submit that claims 1-7 (as amended) are patentable over Meier et al.

In view of the amendments and remarks presented herein above, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested.

**New Claims**

New claims 59-65 recite a reactive polymer prepared by a method comprising: combining and copolymerizing monomers comprising N-isopropylacrylamide and vinyl azlactone to form an azlactone-functional polymer; and reacting the azlactone-functional polymer with a hydroxy-functional (meth)acrylate. Applicants respectfully submit that new claims 59-65 are patentable over the cited art for reasons similar to those presented for the patentability of claims 1-7.

Entry, consideration, and allowance of new claims 59-65 are respectfully requested.

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**Request for Rejoinder**

Applicants respectfully request rejoinder of the non-elected claims.

For example, claims 8-14 are directed to methods of making polymers containing polymerized NIPAAm and a pendant ethylenically unsaturated group. Upon an indication of claim 1 being allowable, Applicants respectfully request that method claims 8-14 also be rejoined and examined pursuant to M.P.E.P. §821.04. *See, for example, In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995) and *In re Brouwer*, 77 F.3d 422, 37 USPQ2d 1663 (Fed. Cir. 1996).

Further, claims 24-32 depend from claim 1; claim 33 depends from claim 3; claims 44-56 depend from claim 1; new claims 66-74 depend from new claim 59; new claim 75 depends from new claim 61, and new claims 76-88 depend from new claim 59. Thus, claims 1, 3, 59, and 61 are linking claims. "Any claim(s) directed to the nonelected invention(s), previously withdrawn from consideration, which depends from or includes all the limitations of the allowable linking claim must be rejoined and will be fully examined for patentability." M.P.E.P. §809. Upon an indication of any of claims 1, 3, 59, and 61 being allowable, Applicants respectfully request that claims 24-33, 44-56, and 66-88 also be rejoined and examined pursuant to M.P.E.P. §809.

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Summary

It is respectfully submitted that all the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted

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September 25, 2006

By: 

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CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 25<sup>th</sup> day of September, 2006, at 4:07 p.m. (Central Time).

By: Name: Rachel Baglini